

RESEARCH AND DESIGN OF CUSTOMER  
RELATIONSHIP MANAGEMENT SYSTEM FOR SMALL  
COMPANIES AND ORGANIZATIONS

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The Customer Relationship Management system is a software which would become a multipurpose tool for small and micro business owners. This kind of companies is usually unable to expand the staff, hire individual employees to manage social networks relations or analyze sales statistics. As a result, companies lose potential customers and profit. Based on this problem, the idea of this study was to determine which configuration of the system would provide maximum opportunities for the entrepreneurs.

One of the objectives of this study was to identify the needs and willingness of potential customers to use this system. Another objective was to prepare and develop the system design, for further implementation. The third objective was to define the required list of functionality for the CRM system.

The exploratory research was made to create a unique concept of the CRM system. Qualitative and quantitative data were collected from the survey with entrepreneurs. In addition, the development needs were discovered within related literature. Main CRM concepts collected from the most relevant and valid sources.

As an output of the research, target group of CRM system was determined. A design of CRM system was developed to be used as the base design for the implementation. As a result of qualitative research, information collected during the study was analyzed and accepted as additional requirements for the system. The main functional capabilities of the system were compiled on the basis of personal experience of small business development and analysis of the survey.

**Key words** Customer Relationship Management, Statistics, Web Design, Web Security Issues, Social Media Marketing, Micro Companies and Organizations, Online Marketing, Social Network Promotion

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## SYMBOLS AND ABBREVIATIONS

CRM	Customer Relationship Management
SMM	Social Media Marketing
SaaS	Software as a Service
RBAC	Role Based Access Control
RAM	Random Access Memory
SSL	Secure Sockets Layer
UI	User Interface
IT	Information Technology
API	Application Programming Interface

## 1 INTRODUCTION

### 1.1 Background

Social media is a well-known platform for entertainment and communication between people from all around the world. Today, however, social media have become serious marketing tools for all kinds of businesses. TV ad spend slows dramatically, while social media ad revenue continues to increase. As a result, an increasing number of companies start to gain interest in social media marketing (Krasniak 2016). On the one hand, there are big companies that can afford to maintain a special department for these purposes; on the other hand, there are micro companies and other small organizations that need to carry out online marketing by themselves.

To control companies' online marketing, it is important to review statistics from all social media pages at least two times per day and work on exact marketing two to three times per week, which takes a lot of time and concentration (Baum 2015). In practice, it is nearly impossible to effectively manage social media when, in addition to online marketing, the company needs to deal with other tasks concerning their business.

The main topics of this thesis work are Social Media Marketing and a Customer Relationship Management platform with integrated social media, researched for small companies and other organizations.

### 1.2 Objectives, Research Questions, and Scope

The first objective of this research is to ascertain whether micro-companies in Finland are ready to use this type of business system as a tool for working with everyday marketing tasks. Second objective is to prepare development plan with a design of business platform for the further implementation. Third objective is to find out what functionality will fulfill possible customer needs based on an analysis of the data collected from interviews with entrepreneurs.

This work will address three research questions (hereinafter RQ) as follows:

RQ 1: Do entrepreneurs want to use the CRM system for online marketing and sales processes automation?

Based on the researchers' experience, the CRM system will help to reduce marketing costs. However, entrepreneurs' opinion about possibility of having this platform in use has to be examined.

RQ 2: What design should be implemented for the CRM system?

During research, design of the CRM system should be developed based on list of features, guided by current studies, trends and techniques.

RQ 3: What features should the CRM system contain?

In the beginning of the research, the list of basic functions was created. After conducting the survey, it was supplemented with tools which reflect the needs of the entrepreneurs. Researchers' background consists of previous experience in development of a small business. Supreme Crew Ny was a testing company established with the help of Lapland UAS. Services provided by the company were related to websites, applications development and corporate design. Currently, Supreme Crew Ny has ceased to exist, but researchers are concentrating on the concept of the new company. The main objective of researchers is to simplify and automate business processes for small entrepreneurs by creating an accessible and understandable business platform.

### 1.3 Expected Outcome

In a future perspective, the CRM system will consist of special blocks/pages, transmitting the needed activities from clients' preferred social networks and mail boxes. Additionally, on the separate page, an entrepreneur will be able to find statistics of their accounts such as the number of the website visitors and views/likes from social networks pages. After interviewing potential clients, it is

expected to create a list of functions which have to be implemented in the system. Proven sources with relevant information are going to be used in this research.

A completely described and planned process of the CRM system creation is expected to be an outcome of this research. It will include a list of functions, security policy, system design and a financial plan for development needs with production costs and pricing.

#### 1.4 Thesis Structure

The rest of this thesis work is divided into six chapters as follows. In chapter 2, concepts of design and techniques are described with implementation examples. In chapter 3, security risks and solutions are presented. Chapter 4 presents in-demand features analyzed and described for the development. In chapter 5, financial planning with development expenses and platform pricing policy are described. Chapter 6 draws conclusions on the results of the research and suggests further studies to be conducted.

## 2 SURVEY

For the analysis of the market, a survey among prospective respondents was conducted. When the responses from the eleven entrepreneurs were received, the data collected with the help of the survey was analyzed.

Before the survey, the entrepreneurs were briefly acquainted with the ideas of the CRM system being developed. The main directions of the product vision were presented with a list of functionality. The prospects that can be achieved with the help of this platform are described. The first two questions were aimed at obtaining the first reaction to the product.

Appendix 1 and Appendix 2 contain information on the initial reaction to the presented idea of the product. The initial reaction to the configuration of the platform was mostly positive. From the point of view of the entrepreneurs who participated in the survey, some of the functions of the system are not innovative, however the combination of these functions creates a completely new product.

The third issue was aimed at identifying the number of entrepreneurs willing to pay for a subscription to the platform. The results of this question are shown in Appendix 3. Most of the answers were positive, except for one entrepreneur who already created stable functionality with the help of other resources.

Appendix 4 contains information on the pricing policy. After their previous positive responses about the system, interviewed entrepreneurs were asked to choose the amount of money which they would be willing to spend for a monthly subscription. Expectations about the pricing policy were confirmed, and the analysis of the data collected in this survey had a huge impact on the subsequent research work.

The next question consisted of collecting comments and analyzing the functionality of the platform. It was planned to receive propositions on additional functionality of the system, such as integration with various web services and



billing. Integration these services can supplement the list of CRM system functions, and improve the experience of entrepreneurs.

Some of the proposed functions were added to the system concept after the survey. Some of the proposed functions were added to the concept of the system after the survey. Entrepreneurs expressed their interest in the system, as well as the expected release date of the service (Appendix 3 contains data proving entrepreneurs' interest in the system). All entrepreneurs agreed to be notified of the time when the platform is ready. In general, entrepreneurs were impressed by the platform's capabilities and future perspectives.

### 3 DESIGN OF THE CRM SYSTEM

#### 3.1 Design system

The design system is not just a framework, a set of UI tools or a component library. It is more than a style guide or a set of instructions for writing code. The design system is a constantly evolving set of rules that determines the order in which the product is created. A design system is multifaceted – it includes everything from the culture and mission of the company and up to branding, copywriting, component libraries and other design languages. According to Suarez and Anne (2016, 1), design system is “Collection of reusable components, guided by clear standards, that can be assembled together to build any number of applications.”

From the point of view of an external observer, a good design system is invisible. It creates a feeling of comfort and predictability in the use of the interface of different products, while preserving the unmistakable recognition of a single brand.

Perfectionism is one of the characteristics of inefficient designers. Their desire to design everything in a pixel-perfect manner delays the working process and creates many small tasks that could be avoided. (Bautista 2014)

Researchers faced that mistake before, trying to formalize too many parameters of components, which subsequently led to problems with scalability. To avoid this and other mistakes in the future, new design principles have been formed on the basis of which evaluation of both the components themselves and their feasibility began.

The main goal of implementing the design system was to achieve a visual unity of the product interface and the creation of a system where solutions are re-used not only at the design level, but also at the development level. The key principles for the development of new components are:

- Flexibility – Ability to interchange interface elements without damage to a system.
- Potential for evolution – Ability to upgrade or change interface using existing or new components while at the same time following design system guidelines. Interface elements must have opportunities for evolutionary changes, rather than revolutionary ones.

To organize the design system, an “Atomic design” hierarchy is used, dividing the components according to the principle of increasing their complexity into atoms, molecules, organisms, templates, and pages. The structure of the atomic level includes the main points of the visual language: color, font, form and grid. (Frost 2013.)

The main requirements for the design system are as follows:

- Have a single place to accommodate all reusable components and make them visible.
- Whenever resources are updated, the team must be informed.
- Each team member should be able to easily use the resources in their projects.
- Whenever a project resource is updated, any project file that uses this resource must be informed.
- Any team member should be able to update the design of the system easily and without conflicts, including compatibility and versions.

Ecosystem of the CRM system development should consist of a Sketch file synchronized with Invision. When something is updated in the design system, the Invision project is also updated. Since the project is also synchronized with Slack, the whole team get the notification and the thumbnail of every change that was made in the design system. (Oto 2017)

Having created a design system that covers all the needs of the product, the uniformity of the elements of all interface states can be easily observed and form its new parts, starting with color, the most obvious attribute of style. The main color of the system is blue (Figure 1). Accordingly, the secondary color will be its complementary color – pink (Figure 1).

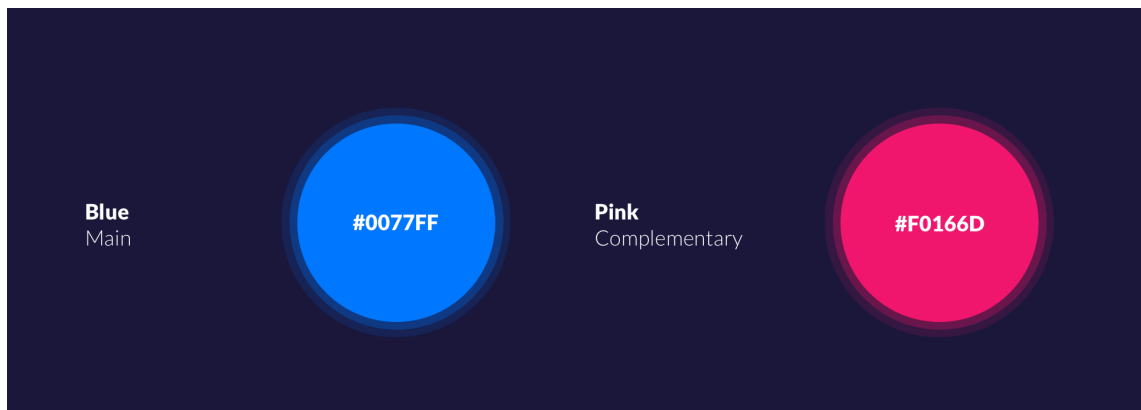


Figure 1. Main Colors of the CRM System Interface.

The use of color to express the idea of success or failure is a common pattern in design, so orange and green were added for this purpose (Figure 2).

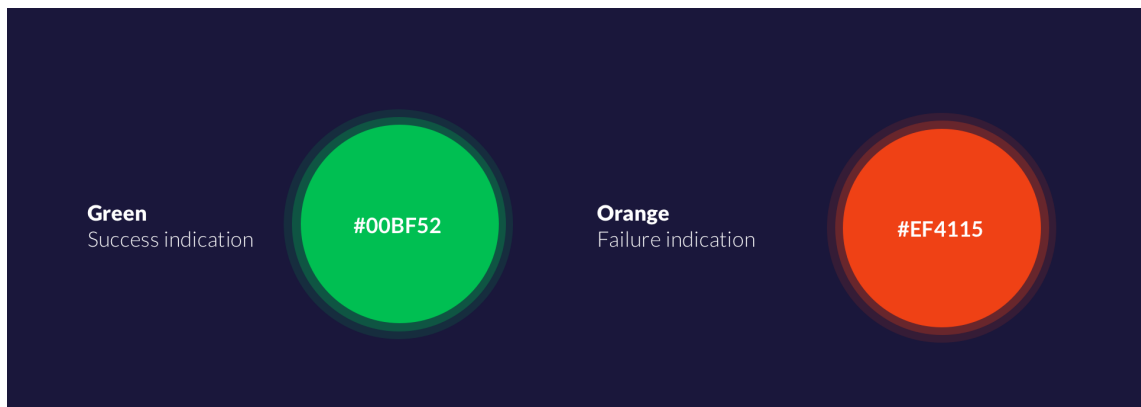


Figure 2. Status Colors of the CRM System Interface.

Finally, there is still need for gray colors and some neutral colors for e.g. backgrounds, titles and text. The interface will consist of at least the following neutral colors:

- White background color.
- Very light shade of gray for backgrounds.

- Slightly darker shade of gray for borders, outlines, strokes and dividers.
- Average gray for subtitles and auxiliary text.
- Dark blue for headings, main text and background.

Listed color palette solutions are presented below on the Figures 3-5.

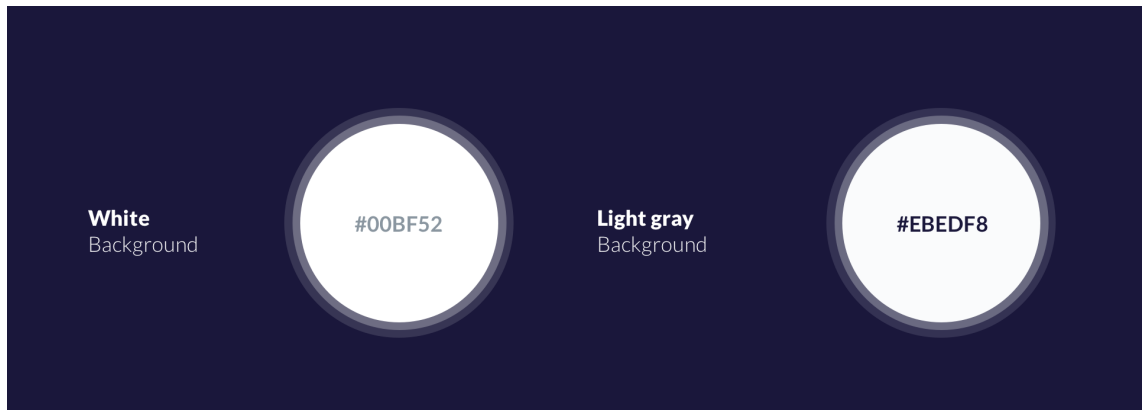


Figure 3. Background Colors of the CRM System Interface.



Figure 4. Subtitle Colors of the CRM System Interface.

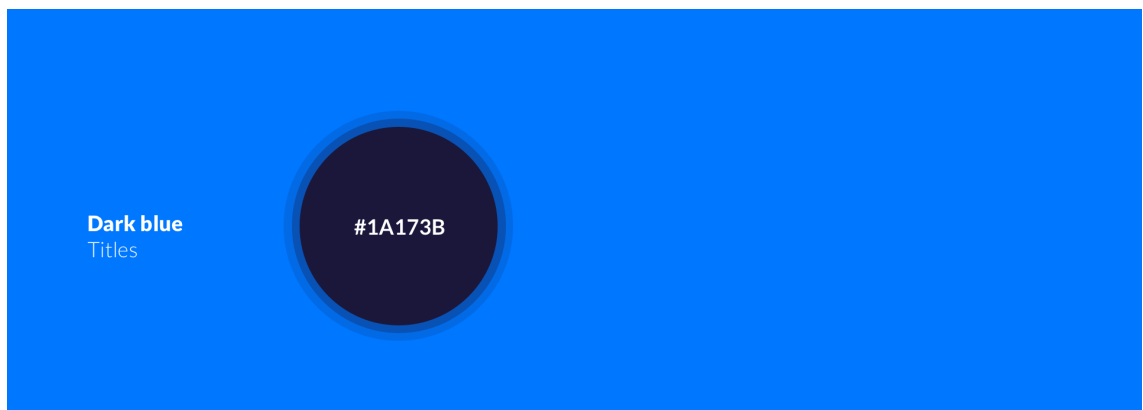


Figure 5. Title colors of the CRM System Interface.

As a finishing touch, varieties in shades were added for both primary and secondary brand colors and presented on the Figure 6. This can be useful when creating different interface components.

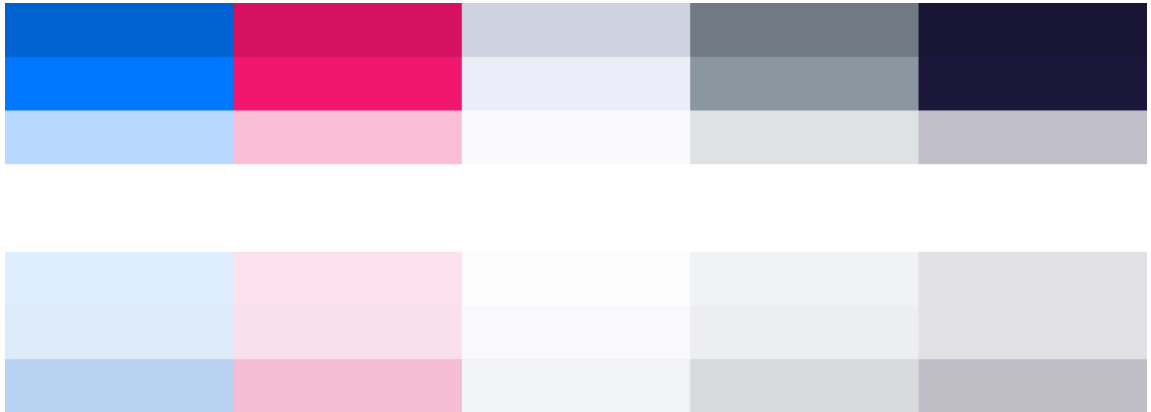


Figure 6. Color Hierarchy of the CRM System Interface.

To build the necessary visual hierarchy on each screen, there is a need to decide which font and font sizes will be used. The “Lato” font is going to be used in the system, since it is free, versatile and available as a web-font to connect straight to the system through code. Figure 7 shows the different weights of the selected font.



Figure 7. Font Weights of the CRM System Interface.

The next step is to estimate necessary font sizes. 16px is going to be taken as the initial (1em) text size that will often appear on the system, as it is the size that is set in browsers by default:

- 6em (96px)/ 3em (48px)/ 2.4em (38,4px) – Titles/Headings & Subheadings.
- 1,6em (25,6px)/ 1,25em (20px)/ 1em (16px)/ 0.8 (12.8px) – Main text & Auxiliary text.

Figures 8-9 represents font sizes for titles, headings, main text and auxiliary text for the CRM system.



Figure 8. Font Size for Titles, Headings and Subheadings of the CRM System Interface.



Figure 9. Font Size for Main Text and Auxiliary Text of the CRM System Interface.

The size is not the only attribute of the style that needed to be set for the font. The spacing between the letters is another useful attribute, with which large headlines are going to be more compact, and small headings will be able to have a bit of room. There are going to be 3-4 slightly different spacing values for each of these situations which are presented on Figure 10.

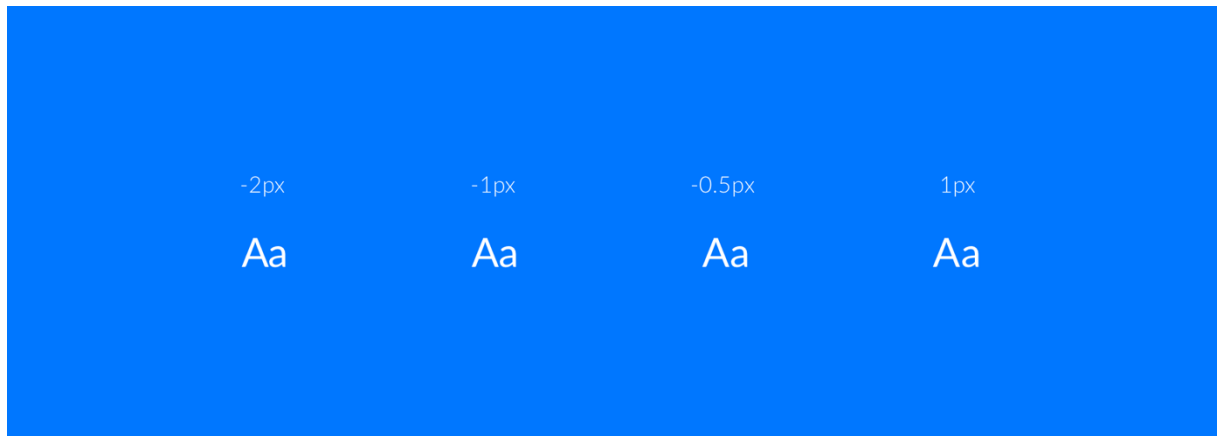


Figure 10. Font Spacing of the CRM System Interface.

The general idea of design system is to apply the same scheme for each attribute that takes arbitrary values. To round off the corners, the following radial values are needed as follows: small radius for small components, the average radius for buttons, input boxes and a large radius for cards, modules and other large components. Figure 11 represents visual implementation for the border radius.

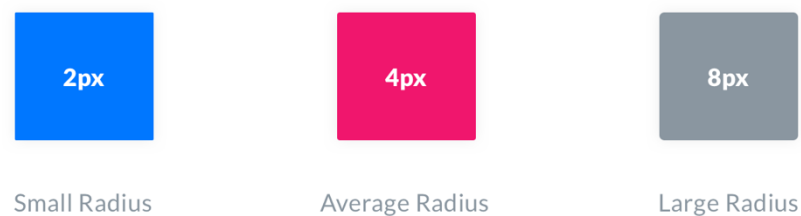


Figure 11. Border Radius of the CRM System Interface.

The most common attribute of style in almost any design system is white space. White space is the space between design elements, as well as the space inside the elements themselves. This is a great tool for creating a balance of visual elements and organizing content to improve visual communication. Important elements such as buttons, menus, charts stand out against the background of white space, allowing users to easily navigate through the interface of the system. (Muller, 2013)



The design system involves the creation of a certain set of elements and rules that make it easier to further develop and support the future CRM system. Using Grid is one of the most important steps for facilitating future work for front end developers, back end developers, and also for the designer himself. A grid is a structure comprising a series of lines (vertical or intersecting) that divide a page into columns or modules. This structure helps designers to arrange content on the page. (Babich 2017)

An 8pt material grid is used in the system, as recommend by Google. Dahl (2016, 1.) points out the benefits that this type of grid gives: “The variety of screen sizes and pixel densities has continued to increase making the work of asset generation more complicated for designers. Utilizing an even number like 8 to size and space elements makes scaling for a wide variety of devices easy and consistent... The majority of popular screen sizes are divisible by 8 which makes for an easy fit.” With a step of 8dp, the distance between the various components in the layout can be easily calculated. Figure 12 shows values which specify the height and width of elements and line spacing between them. These values can be used repeatedly for determining the size of buttons, input fields and avatars. These components will often appear together, so it will be more convenient if the ratio of their sizes will always be the same, in order to avoid undesirable discrepancies.

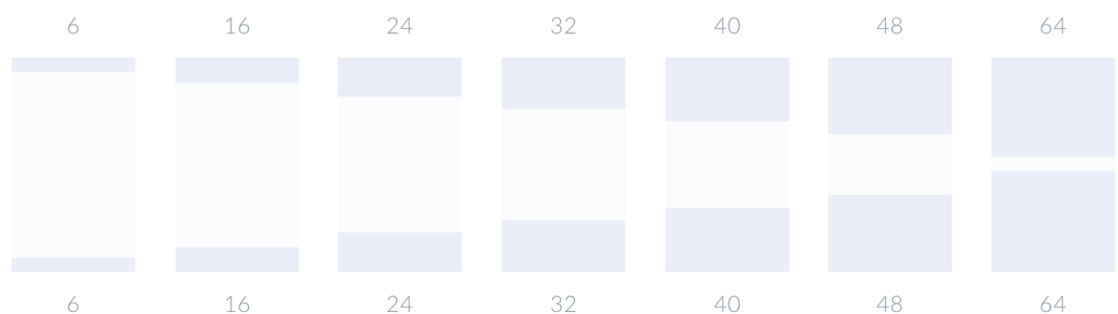


Figure 12. Height, Width and Line Spacing of the CRM System Interface.

At the molecular level of the atomic design there are elements that form the skeleton of the interface: buttons, input, text areas, pop-ups, drop-down menus and others. As an example of element, button design is shown on Figure 13.

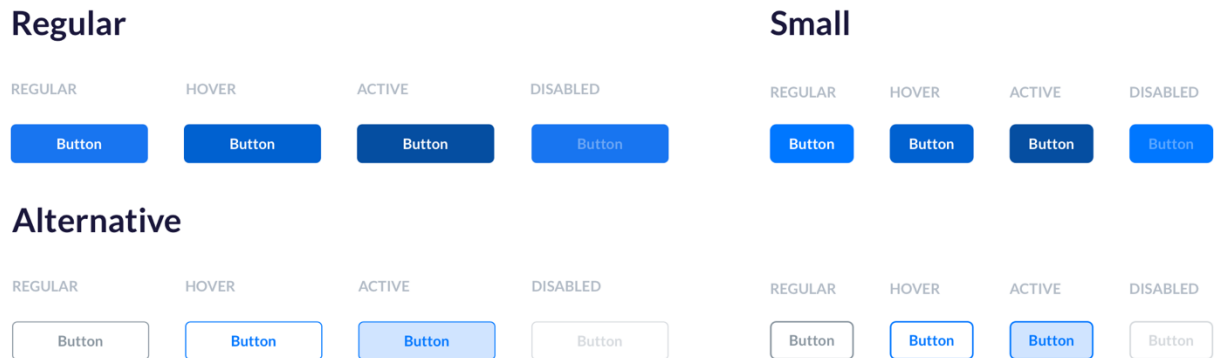


Figure 13. Buttons' States of the CRM System Interface.

A list of templates consists of a list of projects and tasks, a calendar, charts, chat. This list is very extensive, as it includes templates of many ready-made elements for system pages, which are presented on Figure 14.

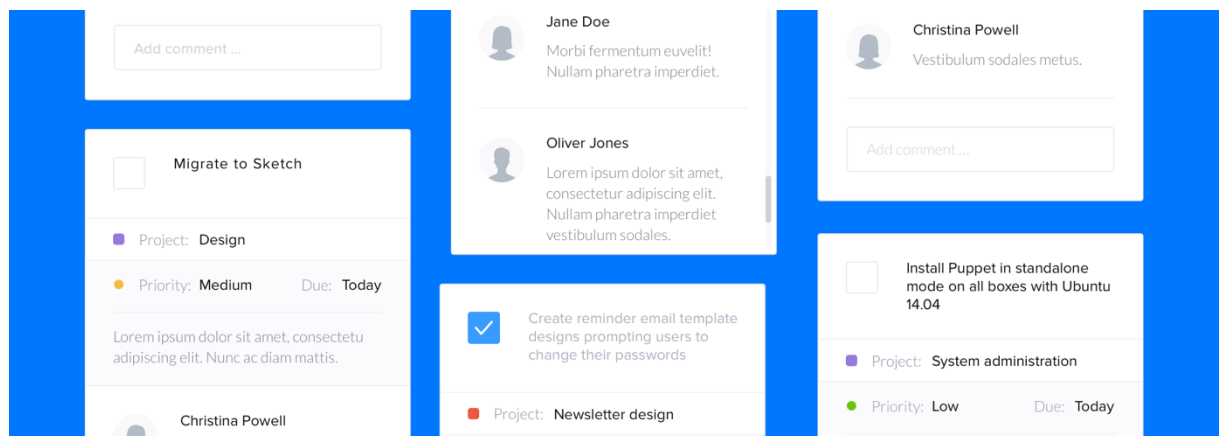


Figure 14. Design of the CRM System's Task List.

### 3.2 Usability

In today's world, understanding the basics of usability is a must. Usability is a qualitative indicator of the simplicity and convenience of using a website, system, product or application. Most users do not commit actions that are expected of them by resource owners. People do not order goods, do not register, do not

subscribe to updates. The reason for this behavior is simple – the resource turns out to be inconvenient for the user. (Cockton 2013)

Leung (2016) finds it important to define seven critical usability principles, three of which are crucial for the CRM system:

- · The rule of 7 items

People can only retain five to nine things in their short-term memory at a time. Since the human brain is limited in its ability to process information and processes this restriction, dividing information into pieces and units, it was suggested that the navigation menu of digital interfaces should also be limited to a content of only five to nine elements. The main menu of the system consists of five elements, illustrated with icons, which are used as visual anchors for the user. When an item is active, it uses a blue color to show which part of the system the user is in.

- · The rule of 2 seconds

Two seconds is the optimal time interval for the response of the program. The less user has to wait, the better the user experience will be. Interface of the CRM system is very light, it does not use complex elements or heavy high-resolution pictures, which helps to reduce download time to a minimum.

- · The rule of 3 clicks

The visitor should have the opportunity to get from the main page to any other page of the website, by making no more than 3 clicks. The navigation system of the CRM system is simple, intuitive, and is based on this rule.

The importance of usability of the system interface is difficult to overestimate. It is important to start applying usability rules in the early stages of system development: the earlier the developer begins to plan the structure and appearance of the future resource, the more qualitative the result will be.

## 4 SECURITY OF THE SYSTEM

### 4.1 Servers and security

The CRM system includes a utility for storing documents related to the business, such as contracts, licenses, certificates and employee summaries. This form of the system requires not only high-level protection of personal data, but also strong protection of client files stored in the system. In addition, the system contains a lot of statistical data and information about business contacts. All these components of the CRM-system must be properly protected from all types of attacks and data leaks.

To prepare a well-secured system, all the possible vulnerabilities should be described and possible solutions for each of them should be provided. Table 1 provides a list of the main identified vulnerabilities and risks, their description and possible solutions.

Table1. Vulnerabilities and Risks of the System

Risks	Description	Solution
<b>Unauthorized access</b>	Unauthorized access is an attack with intention to get access to the needed data by getting logins and passwords.	Service provider needs to provide users and admins with an instruction. This instruction should contain main rules of how to protect personal computer and how user can work with his password and login. In addition to this, it is good to use a practice of Salted hashing for passwords stored in system. That kind of practice will help to secure system from possibility to get the data during transferring of request.

<b>DDOS</b>	This type of attack is very complex and still does not have a proper solution to it. Well generated DDOS attack still can take down online service or website.	DDOS guard company can help to reduce the volume of network traffic by filtering it inside of it's own proxy servers.
<b>Malware</b>	Malware is a common name for all types of cyber threats, such as viruses, trojans, spyware, keyloggers.	To protect the system from malwares provider can use antiviruses on the server. User also have to protect his computer from viruses, worms and other malwares with an antivirus software.
<b>Physical access to the server</b>	Physical access to the server with database.	Such a good option for the security in this section service provider can use server provider with good reputation, who provides the security for the server rooms and your server.

All these risks can cause irreparable harm to the CRM system and its customers, as a result of which the logins and passwords of employees or personal information of clients may be lost. Some of the above types of risks can be prevented with the help of a security policy among employees, others can be stopped by hiring guard companies.

#### 4.2 Unauthorized access

At the moment, there are three main possible threats for the system. First is an unauthorized access, which can be gained using multiple approaches. One of them is a brute-force attack. This attack is implemented by trying many different

passwords in order to find the right one. Jain (2017, 683.) suggests three possible approaches of this attack:

- Manual login attempts.
- Dictionary-based attacks.
- Generated logins.

All these methods have the same logic, but different implementation. With the help of "Manual login attempts", the hacker uses any random logins and passwords. In "Dictionary-Based Attacks", an attacker uses programs with a dictionary library and inserts ready-made words in the form of passwords one by one. The "Created Logins" method can be used for passwords that were created by the password generator.

All these methods can be easily blocked, but still have to be considered as possible risks. In addition, one of the following steps should be taken to enhance the security of the system. First of all, the system can be protected by locking the account after a predetermined number of incorrect passwords. The account will be locked for a certain period of time, and then the user will be able to have more attempts. The second way to stop the brute-force attack is to increase the delay time. For example, if a user made 50 incorrect login attempts, the delay time between each attempt will be increased to 5 seconds. After 100 incorrect attempts, the delay time will be increased to 10 seconds between each attempt. The third way to protect the system from this type of attack is to block the IP address of the intruder's computer. Large enterprises avoid to use this measure, since users can forget their passwords.

Other ways to get a login and password are to track data traffic between the computer and the server and retrieve data. An attacker can try to access the data traffic and find the part associated with the login actions. The service provider can implement the practice of "Password hashing" to prevent access by an attacker. There will be no harm to security, even if the file with saved passwords is compromised. "Hashing passwords" is a very effective method for securely storing passwords. This is a one-way password encryption, which can consist of

any number of characters and can not be decrypted to the original password. It will always be a hash with 64 characters, and if one character is different, the hash will also be completely different. Table 2 represents several examples of hashes.

Table 2. Hashing of passwords. (Hornby 2016)

Passwords	Hashed passwords
<b>“Hello”</b>	c0e81794384491161f1777c232bc6bd9ec38f616560b120fda8e90f383853542
<b>“hello”</b>	58756879c05c68dfac9866712fad6a93f8146f337a69afe7dd238f3364946366
<b>“Hbllø”</b>	2cf24dba5fb0a30e26e83b2ac5b9e29e1b161e5c1fa7425e73043362938b9824

A standard hashing tool can be hacked if an attacker uses a hash-cracker. It contains a hash library for various possible passwords, which makes standard password hashing almost useless. However, the "Salted password hashing" method has a much higher degree of security (Hornby 2016).

Adding the word "Salted" to the name of this method means that each password in the system includes a special part called "Salt". The password for hashing will be expanded at least twice, which will result in an extremely low possibility to crack a salted password hashing. Cryptographers have three simple rules for adding "Salt" to the hash. First of all, using the same "Salt" for different passwords is restricted. The second rule warns of the danger of using a short "salt". The third rule concerns the misuse of self-written hashing algorithms which are too simple to crack. The specialists of cryptography are convinced that these rules will protect users from possible attacks. (Hornby 2016)

The next level of protection can be performed to protect network traffic using SSL certificates. An SSL certificate is a way to protect sensitive user data during a

connection between a server and a browser. It encrypts all data for transmission from the browser to the server and vice versa. In addition, the SSL certificate will authenticate the identity of the website as trusted.

#### 4.3 DDoS

A distributed-denial-of-service (hereinafter, DDoS) attack is an attempt to prevent proper functionality of the online service. The main approach of DDoS is to overload the system by sending a huge number of requests which are required to use as much Random Access Memory (hereinafter, RAM) as possible for a response. The attack is performed simultaneously from all the computers involved. Billions of requests attack the system and try to stop its functionality, reboot it or even shut it down. (Sachdeva & Mahajan 2013, 21-22.)

Sometimes DDoS attacks use a different technique. All involved computers send malicious packets to the system, and if the security of the system is vulnerable, it can be infected with viruses and destroyed from the inside. Statistics, made by Verisign (2017), show that the number, volume and strength of attacks significantly increase with each quarter. For example, in the first quarter of 2017, the percentage of attacks increased dramatically compared to the last quarter of 2016. In the first quarter of 2017, more than half of all DDoS attacks were multi-vector. The use of multi-vector attacks complicates the proper protection of systems, as it requires consistent monitoring of the attack and changing the protection strategy when the type of attack is changed.

The number of computers participating in this attack is incredibly high, and most of these computers are called "Zombies." In fact, the owner of the computer does not even know that his computer is participating in a DDoS attack. This is the result of malicious software getting into the computer through untrusted resources on the Internet. A very large number of devices without good protection are potentially infected with malware. The newest malicious software, which is not currently listed in antivirus databases, is able to infect well-protected computers. By the time the antivirus starts detecting new malware, the computer can already be part of the attack.



Nevertheless, there are many opportunities to reduce the risk of DDoS attacks and protect systems from greater damage. Douligieris and Mitrokotsa (2004, 653-654.) offer several different approaches to protecting against DDoS attacks. The main approaches to protection against this type of attack can be found in Figure 15.

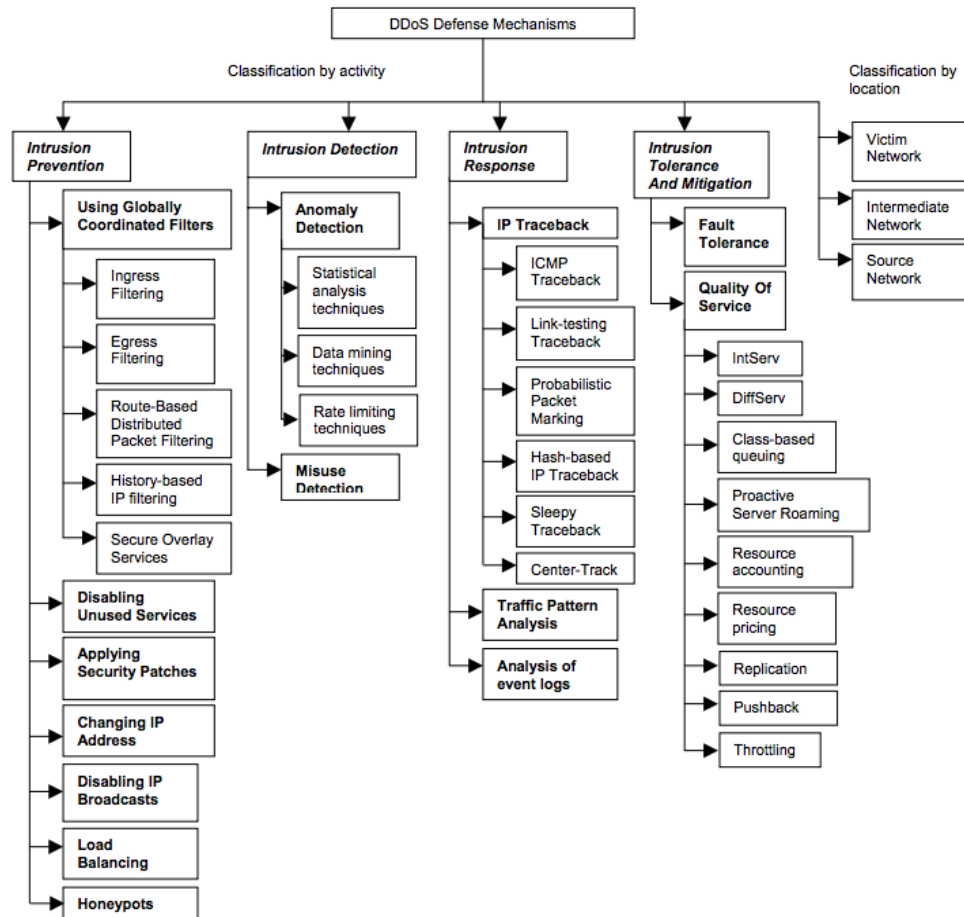


Figure 15. DDoS Defense Mechanisms.

The main way to protect the system from a DDoS attack is to completely prevent it. This list is called "Intrusion Prevention" and contains the main approaches to preventing DDoS attacks:

- Using globally coordinated filters

The purpose of filters is to block undesirable requests before the number of requests start to bring an impact at full volume. It can be done when the attack is not fully coordinated. Some examples of filters are as follows: Ingress Filtering,

Egress Filtering, Route-Based Distributed Packet Filtering, History-Based IP Filtering and Secure Overlay Services.

- Disabling unused services

If some services on the network are not being used, it's better to turn them off.

- Applying security patches

New updates will reduce the effect of DDoS attack.

- Changing IP address

This approach is called "Moving target protection" and is based on changing the IP address of the system to confuse the attacker and push him to find the service from the very beginning.

- Load balancing

Load balancing is very simple and at the same time effective and necessary practice. It can be described as the activation of a network provider to increase the bandwidth for critical connections.

- Honeypots

Honeypots are configured with limited protection, and their role is to lure attention to themselves and get damaged instead of the target server.

If Intrusion Prevention does not work, the next step is Intrusions Detection. It consists of detecting anomalies or misuse. Detecting anomalies involves monitoring the system for unusual behavior of services. When an anomaly is found, getting rid of its cause becomes easier. (Douligeris & Mitrokotsa 2004, 654-657.)

Another part of the system's security is Intrusion Response. The next step is to protect the system by blocking the attacker, which should be found as soon as

possible. Otherwise, the system will block each user. As a result, the target of the attacker will be reached, because the system will cease to function. One way to get information about an attacker is to use backtrack IP traffic. This can be done with the help of monitoring software. (Douligeris & Mitrokotsa 2004, 657-658.)

Traffic Pattern Analysis is an important part of the Intrusion Response. Traffic pattern data can be stored during an attack and should be analyzed to prevent future attacks. It is very important to study the behavior of DDoS attacks and understand which parts of the system are most vulnerable. Analyzing the results of event logs will reduce the risk of successful attacks in the future. Moreover, it helps to understand what types of DDoS were used in the attack.

To sum it up, the DDoS attack can not be completely prevented, but harmful effects can be minimized. There are many different companies that provide good security measures against DDoS attacks by splitting and filtering unwanted requests and malicious packages.

#### 4.4 Malware

A malicious program or malware is a program that was downloaded to a computer or other device for the purpose of spying, stealing, or distorting information. Malware is a common name for various types of harmful software, such as spyware, adware, phishing, viruses, trojans, worms, rootkits, extortionists and browser hijackers. Malware can be obtained by receiving email, visiting various unreliable web resources and downloading software from unknown developers. However, there is an easy solution to prevent malware infection. First of all, anti-virus must be installed on the device and updated several times a month. Secondly, the user should avoid unreliable resources and sites with a bad reputation. (Lord 2015)

Physical access to the server is another potential vulnerability of the system. Due to physical access, an attacker can obtain personal data or run malicious software from a USB drive. Malicious software can damage or transmit sensitive information. Server antivirus is required to detect and isolate malicious / infected

files. Another level of data protection is a dedicated server backup. The connection must be encrypted to avoid any risk of losing the backup files.

Despite these protection practices, there is a chance that attackers will reach their target. The main and the most effective way to protect the server from these risks is to use proper security measures in the facility where the server room is located. One possible solution is to rent server space in the data center company. If the company already has a good server, it can be located in the data center, where it will be well protected from physical access.

#### 4.5 Solution

To summarize security policies, following steps should be implemented to decrease or prevent security risks:

- Contact data center to rent a server and administration services.
- Buy SSL certificate.
- Develop two-step user authentication with “Salted password hashing”.
- Contact company who provides protection from DDoS attacks.

A two-step authorization, i.e. a password and a unique one-time code, is going to be used to protect against spyware that can steal employees' login / password in order to access data. The system is going to create a backup of all working files and save them in the cloud storage under reliable protection. If one of the computers in the system is going to be compromised, there will be a possibility to restore lost copies of documents at any time. The data of different users is going to be divided at the level of databases and cloud storage. There will be no opportunity to access personal data.

#### 4.6 User permissions

Information systems of private enterprises are full of commercial secrets. Contacts of clients and details of contracts should be strictly confidential. CRM

system has a feature to control what level of access should be granted to the user. Role Based Access Control (hereinafter RBAC) was chosen as an option to describe user permissions. RBAC is a system for organizing permissions which are associated with prescribed roles. (Sandhu & Coyne 1996, 1.) A role is created based on specialization and responsibilities of the user. As an example of concept implementation, the seller should have access only to the leads and contacts list, internal chat, calendar, projects, personal statistic and external mailbox features.

The user who purchased one of the subscription plans of the system will be granted admin rights. The administrator limits access in accordance with user roles, such as department managers, directors and administrators as well as by groups, departments, and specific employees.

One of the advantages of using RBAC is the reduction of information damage by intruders. For instance, if somebody will gather access to the accountant login data, this intruder will not be able to retrieve data about client base and steal client's information. (IJAST 2014, 33.)

The disadvantage of this method is the distribution of tasks on the basis of the least privileges. If the user role is changed, some confusion may occur when considering the permissions of each user associated with that role. (IJAST 2014, 33.)

## 5 SYSTEM FEATURES

### 5.1 Basic features

CRM system is necessary for any business that works with customers directly and is looking for increases in the customer base and revenue. Therefore, it is important to define CRM and highlight its main benefits. The definition given by Guay (2017), contains all the essential aspects of CRM system: "Customer relationship management software are tools to organize your contact info and manage your relationship with current and prospective customers, clients, and other contacts."

Using CRM system leads to the fact that different business management tools are combined into a well-functioning system. There is only one service instead of Excel spreadsheets, instant messengers and a big amount of paper documentation. It includes programs for collecting customer data, analytics and forecasting. The main goal of implementing the CRM-strategy is to create a single ecosystem for attracting new customers and developing the relationship with existing ones. Managing relationships means attracting new customers, turn neutral buyers into loyal customers, and regular customers to business partners. (Buttle 2009, 15.)

Figure 16 represents design of Overview page of the CRM system. There are shown part of general statistics and customer list of the company.

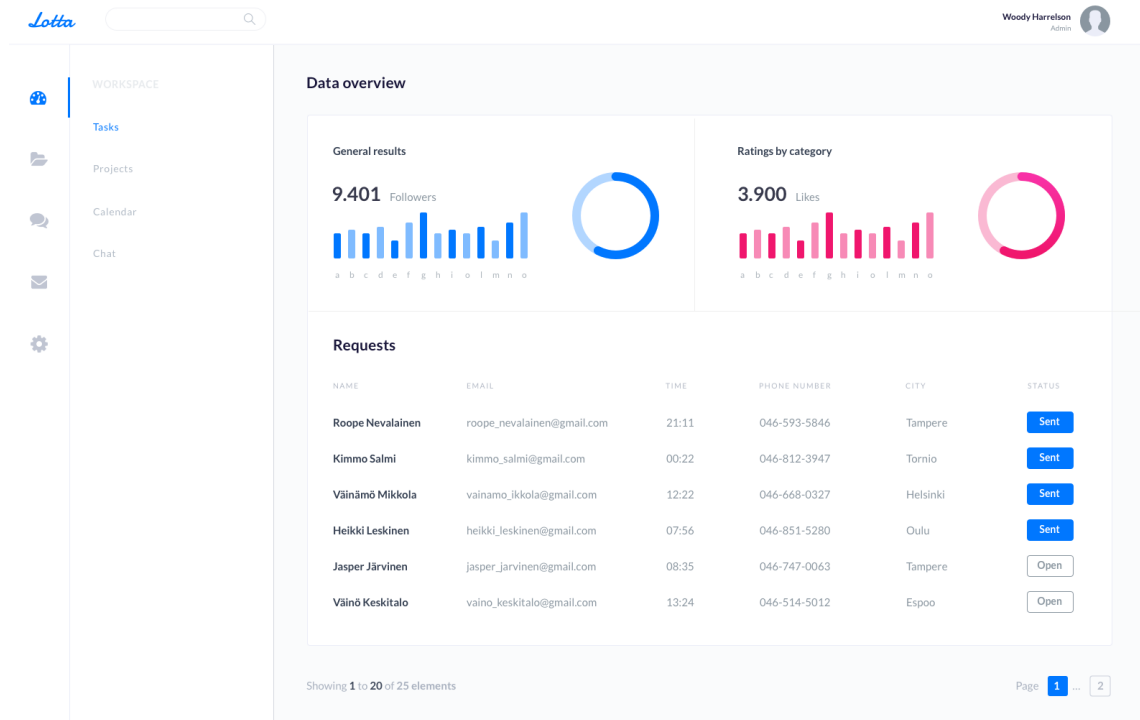


Figure 16. Design of Overview page for the CRM System.

CRM includes all the opportunities for managing customer relationships: managing contacts, managing customer interactions, managing potential and completed transactions. CRM contains tools for creating reports, importing/exporting contacts, analyzing and segmenting the target audience. Based on the data received from CRM, the user can distribute lists of potential customers between sales department managers, plan promotions and subsequently analyze their effectiveness. (Buttle 2009, 6.)

With the help of the CRM-system, the manager along with the potential client make the path from a lead to a completed sale. Lead is a potential sale, an interest in a product or service. This is implicit, yet "phantom" contact, obtained in any way. Leads can be imported into the system manually by managers or automatically through one of the integrated platforms such as email, website or social media. The lead can contain data of potential contact for e.g. phone, address and e-mail. Ultimately, the lead must be converted either into the "Contact" or "Company" and then into the transaction. Lead advance in the system according to certain rules, the most important of which is mandatory processing of any received lead. The manager can call the client, send the price-

list, go to the office for a meeting, hold a webinar for him, invite him to a seminar. If the lead was converted into a Contact, the manager should assume that a sale is ready to be made. (Buttle 2009, 8.)

Contacts in CRM are cards with customer data. The system allows the user to view the list of available contacts and add new contacts to the database. A user with a certain access level can export a list of company contacts to a separate Excel file. The list of contacts is configurable, frequently used sets of settings can be saved and then selected from the list for quick access. The following actions are available for any of the contacts directly from the list: each of the items can be viewed or edited, attached to a project, task, transaction, or deleted. The contact profile can be browsed directly from the list of contacts or search results. The profile contains complete information about each record – contact information, information about the company that the contact represents, and events related to it.

Companies are a more capacious unit in the CRM system, which contains contacts, transactions, and all related events. Usually, each contact is tied to one or more of the companies that it represents. In the company profile, not only information about the organization can be found (name, addresses, phone numbers, annual turnover, number of employees, etc.), but also from which lead this record was converted, which manager created this record, or from which platform it was imported. All in all, the company card displays all the information necessary for the manager to make a sale. (Buttle 2009, 1.)

A sale is the ultimate goal and desired result of the entire customer relationship management system. A sale is a possible relationship with a client, a potential sale or a contract made. CRM transaction allows view, edit and export transaction details.

Figure 17 shows project details page of the CRM system, with project information such as description, deadlines, responsible people, cost and priority.



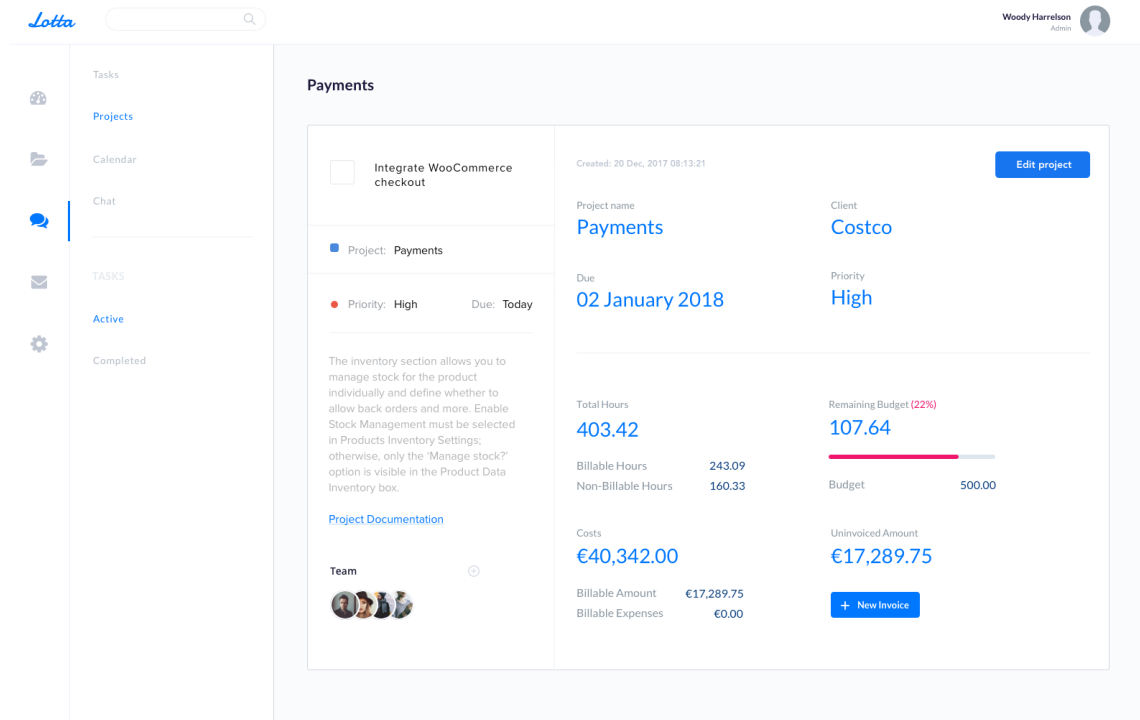


Figure 17. Design of Project Details Page for the CRM System.

The transaction can be added manually by the manager, through one of the integrated services for e.g. site, mail, social networks or when converting the lead. When the transaction is processed, it passes through the successively configured stages. To work with transactions, there is a possibility to set up processing rules. Filtering the list, searching for and exporting transactions - everything works in the same way as with companies.

The dynamics and results of the work of subordinates can be tracked at any time. It is possible to find out the time spent on any operation, set the deadline, and track the problematic stages. CRM calculates performance indicators for each manager and compiles a combined rating for them.

Figure 18 presents the design of the calendar page for the CRM system.

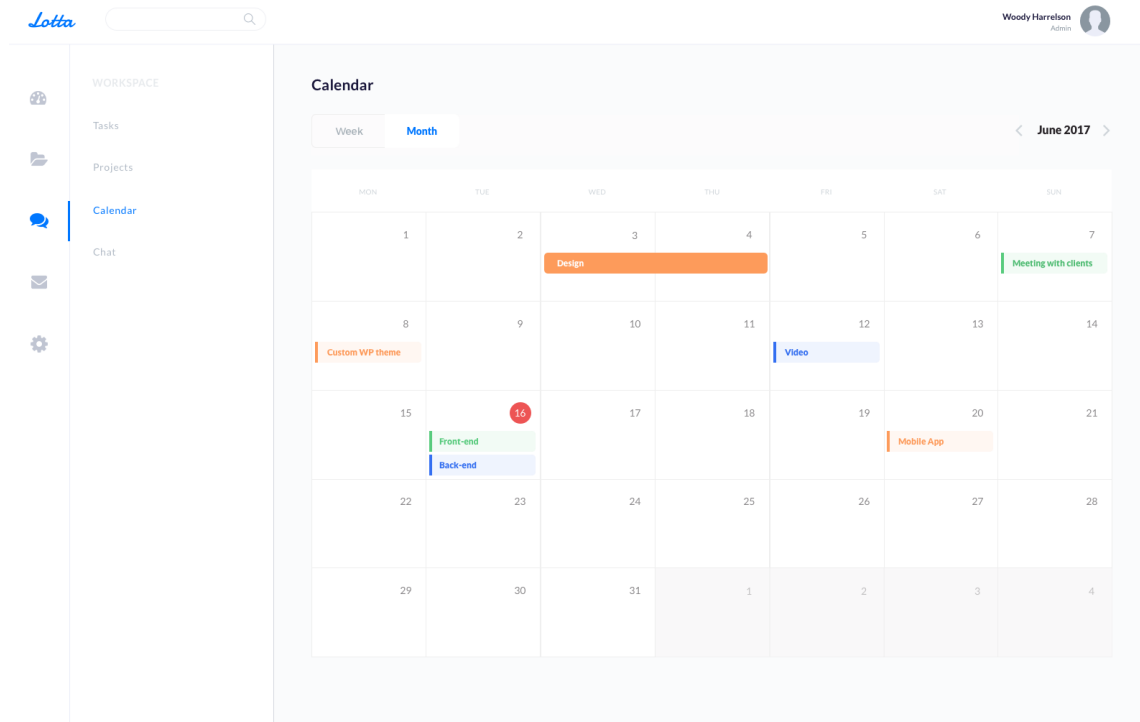


Figure 18. Design of Calendar Page for the CRM System.

One of the main functions of the CRM-system is to help managers plan sales, organize transparent management of transactions and optimize sales channels. The system stores a complete history of communication with customers, which helps sales departments to analyze customer behavior, form suitable proposals and win their loyalty. Offering forecasting and analysis tools, automating the interaction of employees with customers and with each other, the system forms prerequisites for optimizing existing sales channels and increasing the company's profits. (Sanatel Consulting 2018)

The basic concept of the system is aimed at the absence of complex integration with external services. The desire to provide customers with all the instruments they need in a single working environment was fundamental in the development of this concept. Ready-made integration solution (API) for integration of email, website and social networks is going to be delivered with the system. The API is going to be provided with a detailed description and examples of the installation algorithm. A customer who purchased a subscription to one of the system plans can fill out a registration form consisting of ready-made fields, copy the HTML code and paste it onto the company's website. After that, all new leads will be

sent directly to the CRM. In order to integrate Facebook, Instagram or Twitter, the user can add an account of any of these social networks to the CRM system. Adding an account is done by entering the login and password for the page of the chosen social network. Since it is impossible to create a separate Facebook account for a public page of the company, a login and a password of company's public page administrator are used to integrate this social network. After the integration, the system will find all the public pages where the user has administrator rank and automatically connect them. The next step is specifying from which page the user wants to receive messages from. Without leaving the CRM system, the user can communicate simultaneously with company pages' visitors in all connected social networks, transform each connection into a new lead, or add communication history to a card of the existing client.

The system provides all the necessary tools for managing both external and internal document circulation of the company. These tools are used to automatically generate documents using pre-made templates, prepare printed forms of documents, a quick search of documents in the system and invoicing. It is possible to organize the collective work with documents with flexible delineation of access rights, as well as adjusting of the relationships between documents. (Soliman 2011, 167.)

Effective management and accounting of working hours have a positive impact on all business processes of the company. CRM-system allows employees of the organization to record the use of their current working time and plan their schedule. CRM offers convenient access to the schedule where employees can enter their own working hours, mark the results of the scheduled tasks, view the schedule of colleagues. Simultaneously, the management is provided with tools to control the workload and the efficiency of subordinates.

The low level of communication between employers and employees makes the company's work inefficient and leads to disruption of the main business processes. As a result, the profitability of the business decreases. (Rajhans 2012, 1.)

Figure 19 presents the design of internal chat page for the CRM system.

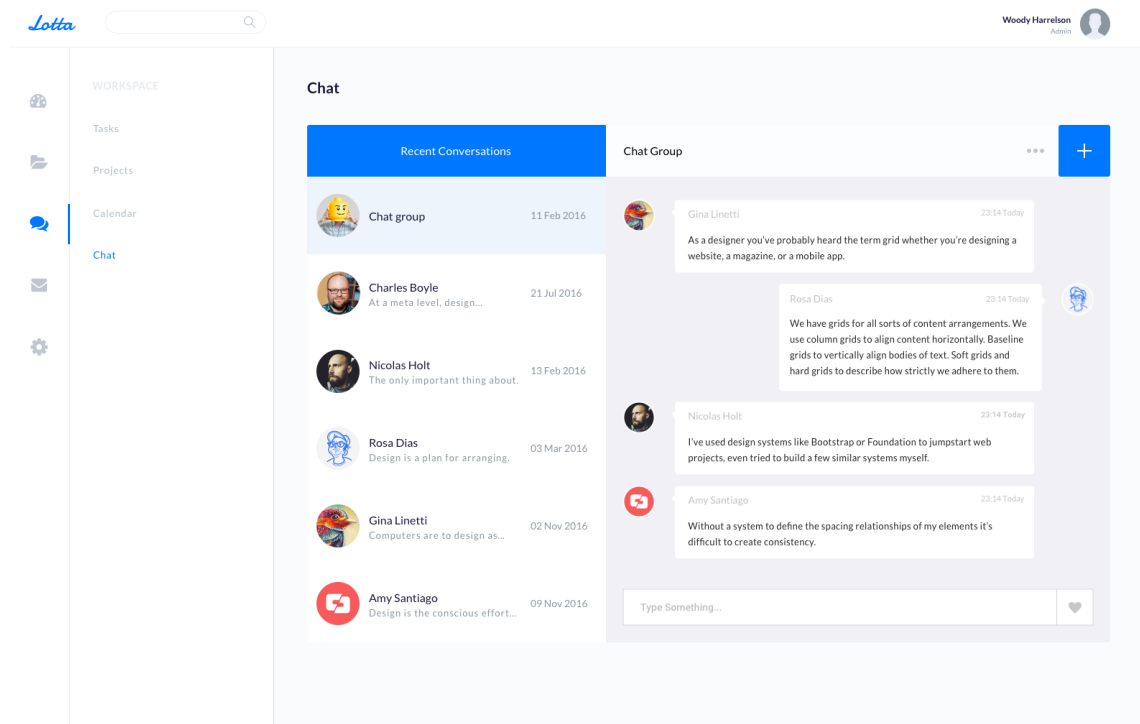


Figure 19. Design of Internal Chat Page for the CRM System.

Using the CRM-system in the company will help to synchronize the actions of personnel, monitor the implementation of the functional roles of the team, organize the automatic allocation of tasks between employees of different departments based on the logic of existing business processes (Sanatel Consulting 2018). Figure 20 presents the design of tasks management page for the CRM system.

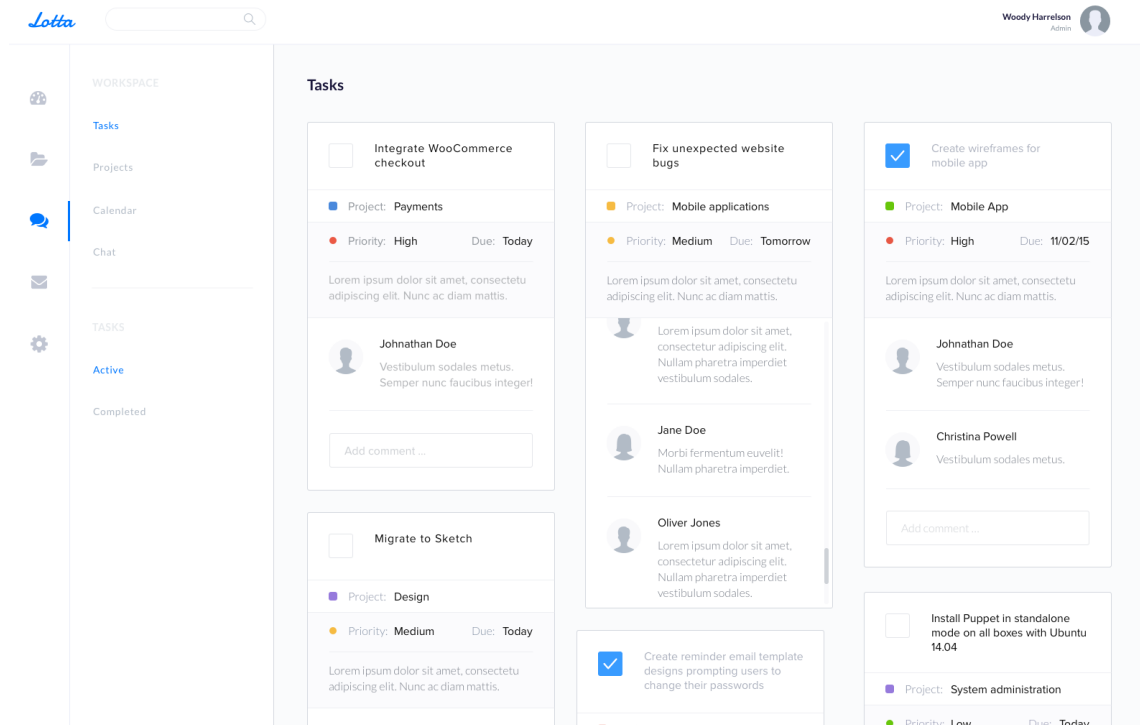


Figure 20. Design of Tasks Management Page for the CRM System.

Management of the internal process of the company is responsible for a good manager who cares about the productivity and effectiveness of the company's human resources. Established task management within the company can provide many benefits and avoid time leakage.

## 5.2 Statistics and reports

The overwhelming majority of businessmen in general never look at statistics, because they do not know how to interpret it. Believing that for the adoption of a true business decision, only a flair and experience are enough, an entrepreneur thereby deprives himself of a large amount of quantitative and qualitative information about market trends. Statistical data reflects the state of certain phenomena by which companies can monitor their dynamics, growth or decline. In addition, statistical methods help the entrepreneur to accurately collect information on the structure of the market, its development directions, monitor trends, determine the impact of individual factors on the obtained business results, and predict the probability of achieving specific goals. That is the reason why the main functions of the CRM system are monitoring of the social media, financial statistics and reports. (Cesar 2014, 15-16.)

Figures 21-22 show the design of SMM and financial statistics pages.

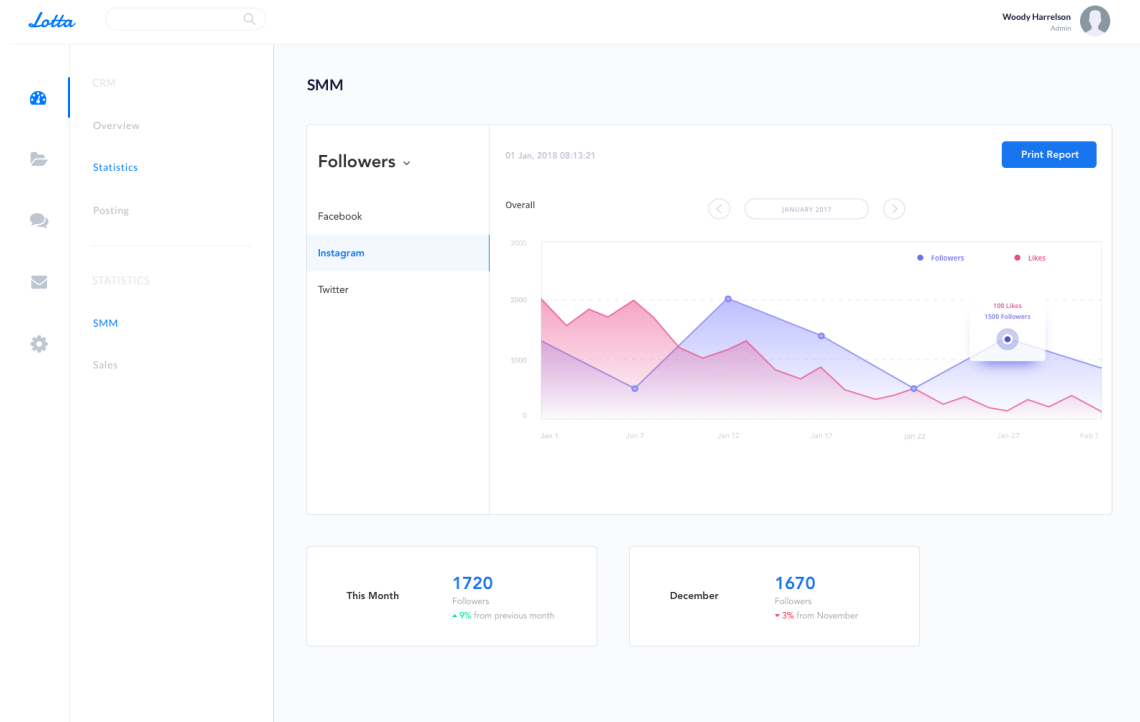


Figure 21. Design of SMM Statistics Page for the CRM System.

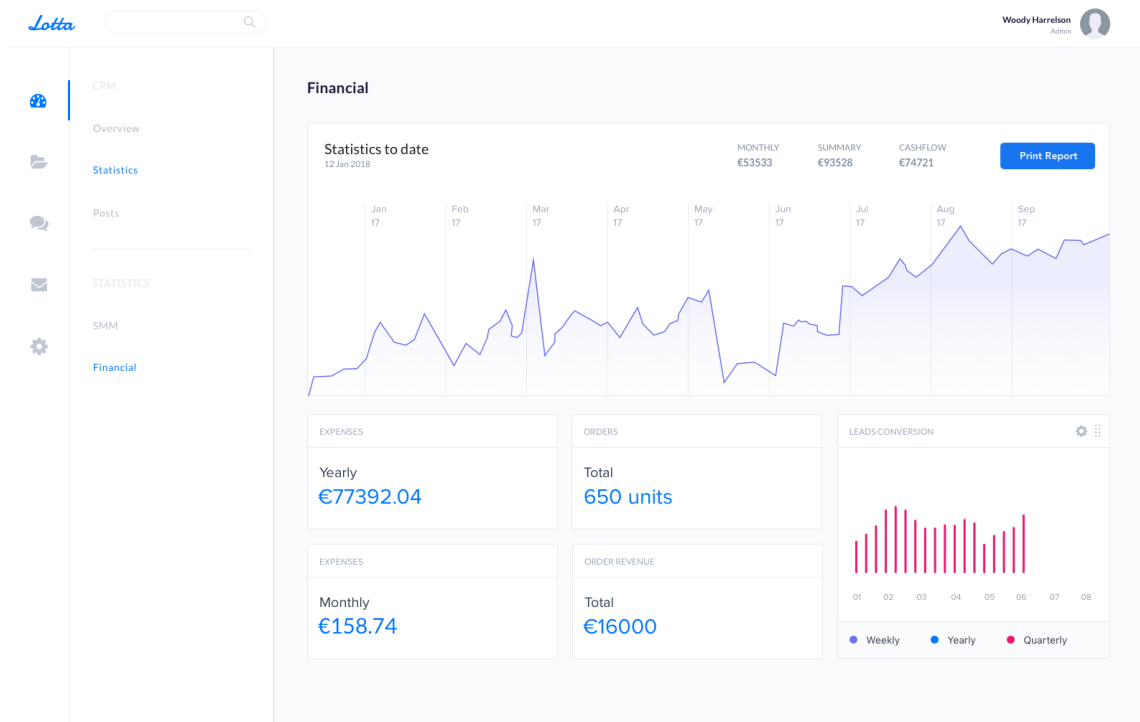


Figure 22. Design of Financial Statistics Page for the CRM System.

The system accumulates statistics throughout the entire sales process, as well as statistics related to the social networks accounts of the company. Each separate report contains all interactions by type, status, source, client, the presence of a record in the CRM, the number of messages in the dialogue. Directly from the report table, the dialogue history can be viewed and reopened if necessary.

Reports are one of the most important parts of the CRM. With the help of the system's report creation wizard, the user can analyze the effectiveness of sales process and adjust it at certain stages. (Mishra & Mishra 2009, 84-85.)

The CRM system contains ready-made sample reports, which can be used immediately or taken as a basis for designing custom reports. Ready-made reports are divided into several categories as follows:

The volume of transactions by managers shown on Figure 23 is the total volume of transactions by managers during the reporting period, the share of completed and failed transactions, and the income received by each manager. It helps to compare the work of managers on the total return and on the effectiveness of work on transactions. This report is intended to be received by heads of departments or employees.

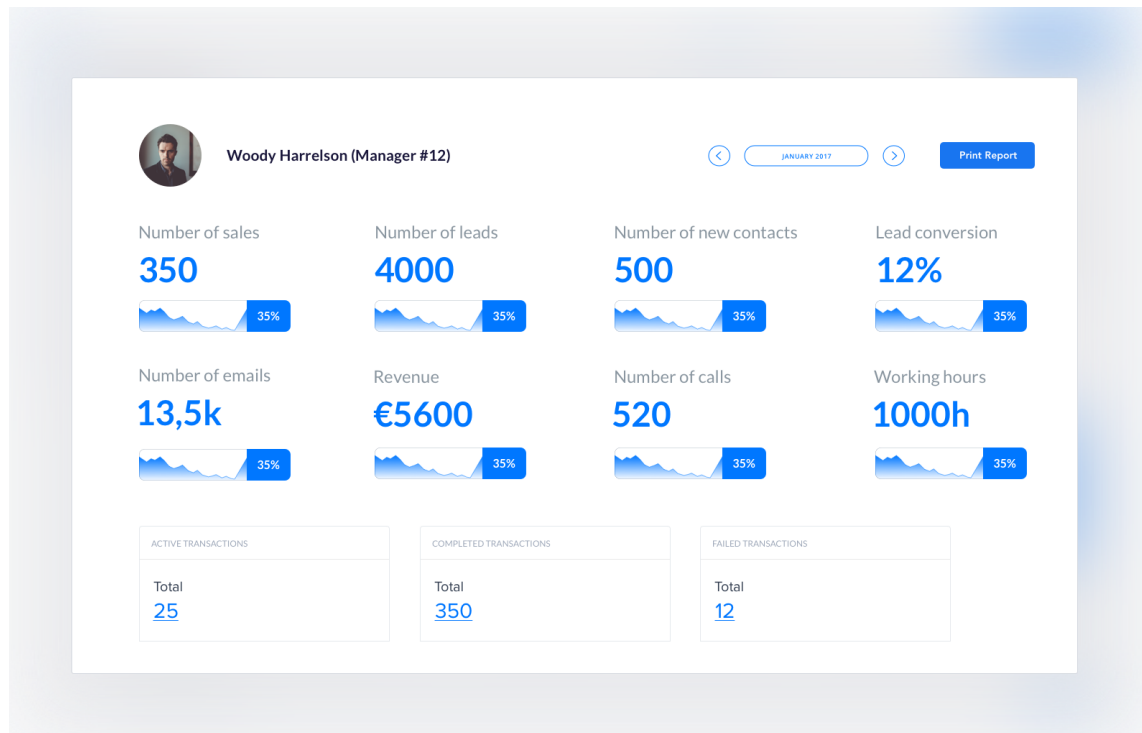


Figure 23. Design of Personal Statistics Page for the CRM System.

The volume of transactions by contacts – the total volume of contacts transactions for the reporting period, the share of completed and failed transactions, as well as the revenue from the completed transactions. The report helps to highlight the most valuable contacts and is designed for managers to analyze the efficiency of their work with specific contacts.

Profitability by companies – the total revenue that was received from the conclusion of transactions with companies for the specified reporting period. The report helps to identify the most valuable companies for future work and is designed for managers to analyze the efficiency of their work with specific companies.

The volume of transactions by companies – the total volume of transactions carried out by companies for the reporting period, the share of won and failed transactions, as well as the revenue received from the trades won. The report helps to identify the most valuable companies and is designed for managers to analyze the efficiency of their work with specific companies.



Overdue transactions – a list of transactions, the processing of which was supposed to be completed according to the plan but was not completed. The report tracks overdue transactions to stimulate the efforts of managers responsible for them. The report is intended for managers (tracking their overdue transactions) and for their managers (tracking the overall picture of delinquent transactions in the department and the ability to take action).

Expected sales – a list of transactions that are currently in an incomplete stage and which should be completed in the near future. The report helps to estimate the expected income in the context of transactions of different types, different probability of successful completion and different clients. This report is intended to guide the user in estimating probable income.

Distribution of unfinished transactions by stages – this report shows the distribution of open transactions by stages and assesses the current state of the portfolio on this basis. The report is intended for managers to estimate the number and proportion of transactions in different stages.

The yield on goods – this report shows what quantities of goods were sold and the amount of revenue for the goods sold for the reporting period. The report highlights the best-selling products and is intended for managers.

A user who owns an administrator account can view the list of reports, edit them, and provide managers with specific roles with different access rights. A typical manager builds a report on his leads, transactions or contacts. Employers have rights to access any data, in any section of the system. They need to know what is happening in the company, and in the same way it is important for employees to know that their work is appreciated, and how well it is performed. Analysis of the reports will help the manager to determine where the deal tasks are performed with low quality and establish a strategy to improve the situation. Thus, the reports allow not only to monitor the performance and achievements of managers but also to identify those aspects of the sales process that needs to be developed. Reports change in real time, depending on the progress of processing transactions. As a result, each manager sees how many transactions there are

on the contact/company card, how many of them are in progress, active or overdue. Each employee can effectively estimate himself. The main thing is that the manager, having looked at the reports, sees his indicators, seeks to raise them, understands how to become more effective and useful for the company. Reports use filters to refine the data in the report. For example, in the "Completed transactions" report, the filter specifies the period for the report, the amount of the transaction and its type, the responsible managers and the company selected.

Emails are one of the easiest ways to contact possible clients. However, many email tracking services affirm that number of opened emails is very low and equals from 10 to 25% of sent emails approximately. This number depends on the total number of cold emails sent. Cold emails are a good tool for obtaining leads, but being poorly composed, they can damage the reputation of the company. Many people do not understand the difference between cold email and spam. Spam is a junk email, in other words, unsolicited bulk messages sent through email mostly by spambots. The task of a competent manager is to build the right business strategy and write a useful letter that does not fall into the spam section. One of the best practices is to "put yourself in their shoes" (McGill 2015, 1.). In other words, the sender has to create an email which won't look like spam. There are several practices which can be used for this purpose as follows:

- The email should be written without deployed introduction and presentation of the company.
- The email should be written in a casual manner.
- The email should be short; the main parts of the proposal should be described briefly.
- The email should be visually attractive and understandable.

It is very important to create beautiful design templates if the company sells a visual product such as websites, applications and branding. Otherwise, emails design should be neutral, especially if the company sells services that are difficult to visualize. The recipient should think that the letter is addressed specifically to him/her.

- E-mail should be personalized where possible.
- Contact details should be put in the signature section.

- The email should be closed with a question.

It is important to realize, that most of the cold emails won't be opened and answered at all. However, even if one of the hundred cold messages will result in obtaining a new lead or contact, it can be counted as a success. The CRM system has reports of sent, received, delivered and answered emails which make the effectiveness of seller emails on the platform transparent.

Public pages on Facebook now have an inscription about the time of the company's reply to the messages. The user knows exactly when a response from the company can be received on the social network. The appearance of such an inscription is a consequence of the dramatically increased share of clients' appeals through various digital channels for e.g. messengers, chat rooms and social networks. Communication through messengers and social networks is convenient and affordable due to the wide-spread distribution of smartphones and tablets. Moreover, successful models of sales organization through social networks and messengers have already appeared. Accordingly, the customer expects all the attributes of pleasant communication with the company in social networks: the speed of response, convenience and personal attention.

The CRM system easily integrates with social networks and helps managers to respond to messages and redirect them in minutes. The SMM statistics tab shows the total number of likes, reposts and comments both on all posts, and on each individual post. Analytical tools also allow the manager to pay attention to each social network individually. Just like in the financial statistics section, the system creates reports on all connected social network accounts of the company and builds graphs that reflect information from the report data.

## 6 FINANCIAL PLANNING

### 6.1 Expenses

The initial investment is necessary for the future development of the described system. Table 3 shows the possible costs for the first year.

Table 3. Expenses for development process.

Expense	Per. month	Per. year
Office space	1500€	17000€
Server	300€	3600€
Back-end Developer	4000€ (taxes included)	48000€
Front-end Developer	4000€ (taxes included)	48000€
Sales Manager	4000€ (taxes included)	48000€
Marketing	2000€	24000€
Software	1000€	12000€
<b>Total</b>	<b>16800€</b>	<b>200600€</b>

The only possible way to further develop the CRM system is to search for an investor. The following list contains steps that can help start-up entrepreneurs to find an investor:

- Draw up a clear plan, which will be presented to potential investors. The document should contain a full description of the company, its prospects and possible place in the market. The most important thing is a competent presentation of an idea that will convince the investors that this type of investment will significantly increase their capital. It is also important to attach the calculation of initial investments and approximate terms of the payback period.

- Seek help from experienced businessmen who have long been working in the chosen field. They can give practical advice on finding potential investors.
- Find specialized websites where start-up entrepreneurs are given the opportunity to present their project to potential investors.
- Decide on the type of investor.

Bernstein (2017) suggests 5 main types of investors as follows:

**Banks –** Microcredit from the bank can be the only available source of start-up financing. The bank will necessarily want to see a detailed business plan, which includes a detailed description of the project and its prospects, financial forecasts, and how the start-up is going to achieve its goals. Most of the banks require to prove our financial responsibility and wait for the time required to obtain a loan.

**Angel Investors –** A business angel is a person investing directly in promising start-ups in exchange for shares in these companies. Many "angels" themselves are successful entrepreneurs, as well as corporate leaders and business professionals. "Angels" are ideal for start-ups, because their personal interest in business growth, their own experience of past entrepreneurial successes and failures often makes them act as a mentor and coach for these start-ups.

**Peer-to-Peer Lenders –** The P2P-credit platform is a financial and technological service by which certain individuals can lend to other individuals or legal entities without intermediaries. Creditors in this type of investment are ordinary people, not banks or credit organizations.

**Venture Capitalists –** Venture firms are engaged in valuation and investment in new and developing businesses. As a result, venture funds operate with a very high financial volume, investing on average only 1 out of every 100 transactions, compared to business angels investing in 1 out of 10 deals. In addition, venture capital firms tend to be more prudent in investment than business angels. While

angels sometimes act as mentors for the entrepreneurs they finance, venture capital tends toward active rather than passive forms of financing. These investors seek to add value, in addition to the capital of the companies they invest in, in order to achieve greater return on investment. Almost all venture funds want to take their place on the board of directors.

**Personal Investors** – An individual investor is a person engaged in investment activity guided only by his own interests and needs. The capital of the average individual investor is quite small, but the share of the capital of all individual investors in the total amount of investments can be very significant.

When the investor type is selected and the previous steps are prepared, the search process is facilitated by understanding where to look and which conditions should be agreed upon. In this situation, the risk of making irresponsible decisions is minimized.

## 6.2 Pricing

To create a pricing policy for the platform, different types of pricing strategies for SaaS have been compared. At the moment, there are many different classifications for models and pricing strategies for subscription services. Table 4 shows the most commonly used pricing strategies (Law 2017).

Table 4. Pricing Models (Law 2017).

Price model	Description	Advantages	Disadvantages
<b>FLAT RATE PRICING</b>	In this model price is equal for every customer. Customer has only two options: to pay monthly or annually.	Easier to sell  Easier to communicate	Difficult to extract value from different users  One shot at securing customers

<b>USAGE BASED PRICING</b>	The price is based on the amount of time that the user spent in the system. In practice, this pricing strategy usually charges a fee due to the number of API requests, processed transactions, or gigabytes of data used.	Price scales alongside usage  Reduces barriers to use	Hard to predict revenue  Hard to predict customer costs  Value is disconnected from the product
<b>TIERED PRICING STRATEGY</b>	The price is calculated as a package with a different number of actions with functionality at different prices.	Clear upselling route  Leave less money on the table  Appeal to multiple personas	Potentially confusing  Lack of custom solutions  "Heavy user risk"
<b>PER USER PRICING</b>	The payment is charged for each user in the system.	Predictable revenue generation  Revenue scales with adoption  Simplicity	Easy to churn  Doesn't reflect the real value  Limits adoption
<b>PER ACTIVE USER PRICING</b>	The payment is charged for each active user in the system.	Customers only pay for active users  Reduces the risk of widespread adoption	Not suitable for small businesses.

<b>PER FEATURE PRICING</b>	Per feature pricing might be applied for the system with more than one feature to use. Packages have different combinations of functionality.	Strong upgrade incentive  Compensate for delivery-heavy features	Difficulties in creating a flexible system of various features.
<b>FREEMIUM BUSINESS MODEL</b>	This pricing strategy is a personalized solution for every customer. It starts with a free trial version of the product.	Easy to start using the product  Viral potential	Subscription users will have to cover the costs on supporting users of the free version of the product.

A mixed price policy was chosen for the CRM system, consisting of two combined price strategies. The combination of the Per User Pricing model and the Tiered Pricing Strategy model is optimal for storing the product's value, predictable revenue generation and simplicity of choice among pre-packaged function packages for customers. Figure 24 presents packages with different amount of functionality for the system.



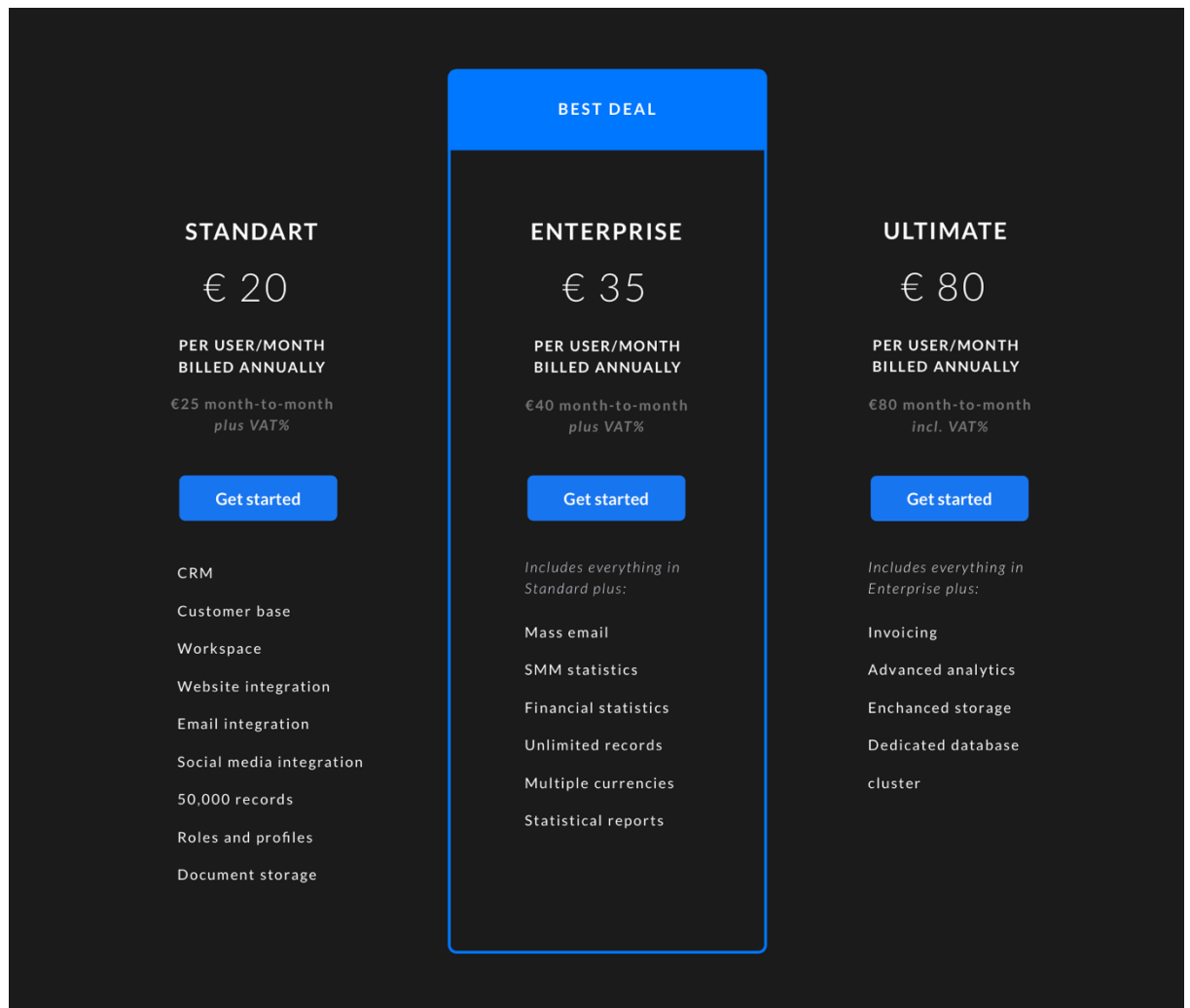


Figure 24. The CRM System Packages by Pricing Model.

- “Standart”

This package contains a minimal number of features and has a buffer role for the pricing. It includes a CRM module, which consists of a client base, a workspace, the integration of websites / e-mail / social networks, roles and profiles, document storage, and the number of records in the database limited to 50,000.

- “Enterprise”

This package contains two of three modules of CRM system. It includes all functions from the "Standard" package, a statistics module that consists of SMM statistics, financial statistics and statistical reports. It updates several functions of the CRM-module from the "Standard" package: enables bulk e-mail, contains

unlimited storage for records in the database and allows the user to work with several currencies.

- “Ultimate”

The ultimate package includes all three available system modules. It includes all features from "Standart" and "Enterprise" packages and enables advanced features module, which consists of invoicing, advanced analytics, enhanced storage, a dedicated database cluster and priority support.

This solution of combined pricing strategies provides high personalization for the customers and saves their money. It will attract customers who are willing to use the product, but do not want to pay for functions unnecessary for their business. In addition, there are several hidden reasons for the chosen pricing strategy.

The main goal of creating the "Standard" package is to provide various options for the client. Due to the fact that users are viewing the web pages from left to right, the package with the lowest cost was placed first. This location helps to avoid the negative reaction to the high cost of more advanced options, as users will begin to compare different packages by analyzing the number of functions in each separately. This decision establishes a shortcut for the most profitable "Enterprise" package in the middle.

The last package was created for customers who want to use all the features of the system. Sales of the "Ultimate" package can be increased with the introduction of the special offer, which will cost 45 euros per month during the first year of subscription. The special offer will be sent as a coupon to potential customers. Sent coupons will perform a double duty – not only saving customers money, but also saving time and mental energy necessary to think about the advisability of buying a subscription to the system. (Cialdini 1984, 5.)

## 7 CONCLUSIONS

This thesis work contains practical and theoretical parts. The practical part is based on the creation of a ready-made system design, described in the theoretical part. The results of the theoretical part include information obtained during the research, which is meeting the requirements given in the research questions.

The system is designed in accordance with modern trends. Usability standards were adopted as one of the most important requirements for the system. It was decided to create the most convenient user interface based on experience and acquired knowledge.

The security policy for the CRM system was discussed and prepared for the implementation. Most of the security risks have been described, and possible ways to prevent or reduce the damage from these risks have been found. The platform has several levels of security for each part that contains user data. In general, with careful implementation of CRM protection, the system will have a good level of intrusion prevention and can guarantee the security of customers' personal information.

The functionality of the CRM system was made up of the personal experience of the research conductors and the data collected during the survey. The most expected platform tools are statistics and the integration of social networks. Other functions have been included in order to create a platform that will be able to provide a large number of customers from various business areas to their desired needs.

With basic features list, provided before, has to solve a lot of entrepreneur's problems, increase efficiency and decrease expenses. Potentially, CRM system might become a famous tool for entrepreneurs and provide a powerful service for every customer. On the end stage of development, a platform has to start to investigate into marketing to prepare a good start for the sales process. On survey was initialized that entrepreneurs are willing to have CRM in use and

ready to pay for that. It means that sellers and promoters only have to inform those entrepreneurs correctly. Investments issue for the platform implementation was researched and list of investor types was presented and described. The most appropriate solution for the CRM system drawn on Chapter 5 based on platform idea and development needs. Further steps of investor search provided with a concrete explanation.

The possible contribution of the CRM system to the economy can be fully considered only after the introduction of the system into the domestic market and monitoring changes against the background of use. However, it can be expected that the changes for small and micro companies are likely to be positive.

A small number of problems arose during the conduction of this research. The most controversial part was the creation of product value and pricing policy, which would be suitable for every potential client of the platform. Market and target group of the customer were met and their needs were conducted to the research output.

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## APPENDICES

Appendix 1. Survey Questions

Appendix 2. Results of Survey

## Appendix 1

## 1. What was your first reaction to this product?

- |   |   |
|---|---|
| <input type="radio"/> Very positive     | <input type="radio"/> Somewhat negative |
| <input type="radio"/> Somewhat positive | <input type="radio"/> Very negative     |
| <input type="radio"/> Neutral           |   |

## 2. How innovative is this product to you?

- |  |   |
|--|---|
| <input type="radio"/> Extremely innovative | <input type="radio"/> Not so innovative     |
| <input type="radio"/> Very innovative      | <input type="radio"/> Not at all innovative |
| <input type="radio"/> Somewhat innovative  |   |

## 3. Would you like to be informed when the system will be ready?

- ☐ Yes
- ☐ No
- ☐ No idea

## 4. If the product were available today, how likely would you be to subscribe to the product?

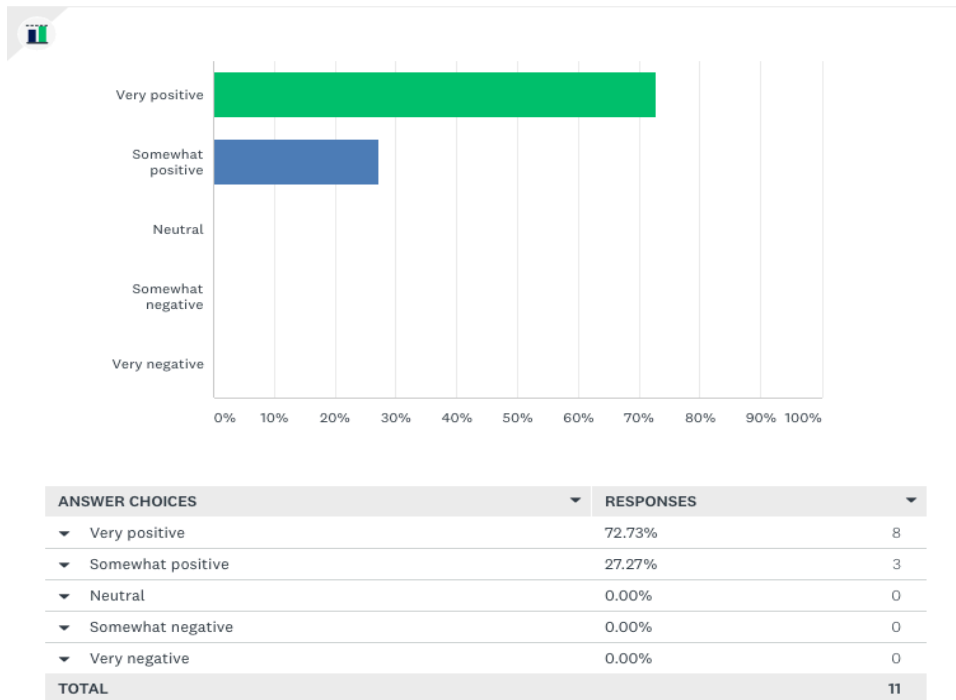
- |  |   |
|--|---|
| <input type="radio"/> Extremely likely | <input type="radio"/> Not so likely     |
| <input type="radio"/> Very likely      | <input type="radio"/> Not at all likely |
| <input type="radio"/> Somewhat likely  |   |

## 5. How much would you be willing to pay for a monthly subscription to this product?

- ☐ from 10€ to 20€/month
- ☐ from 20€ to 50€/month
- ☐ more than 50€/month

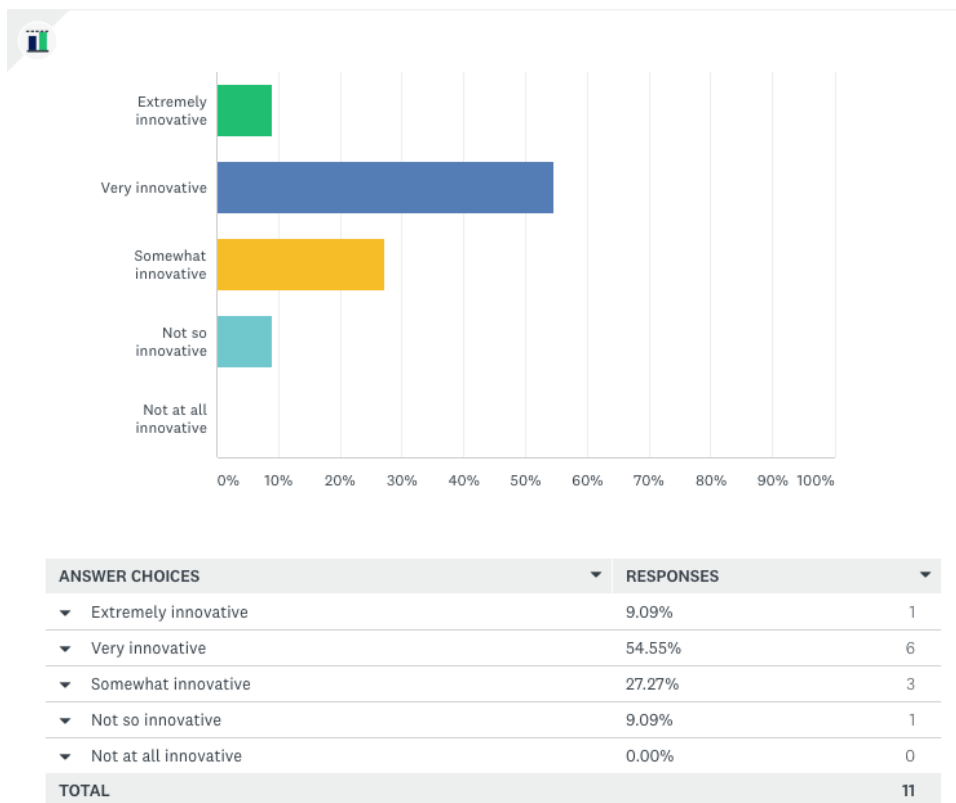
### What was your first reaction to this product?

Answered: 11 Skipped: 0



### How innovative is this product to you?

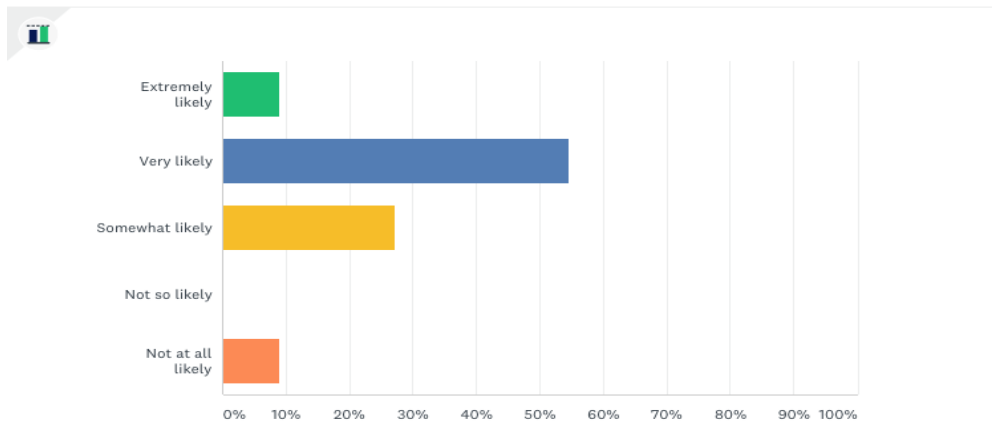
Answered: 11 Skipped: 0



## Appendix 2 2(3)

If the product were available today, how likely would you be to subscribe to the product?

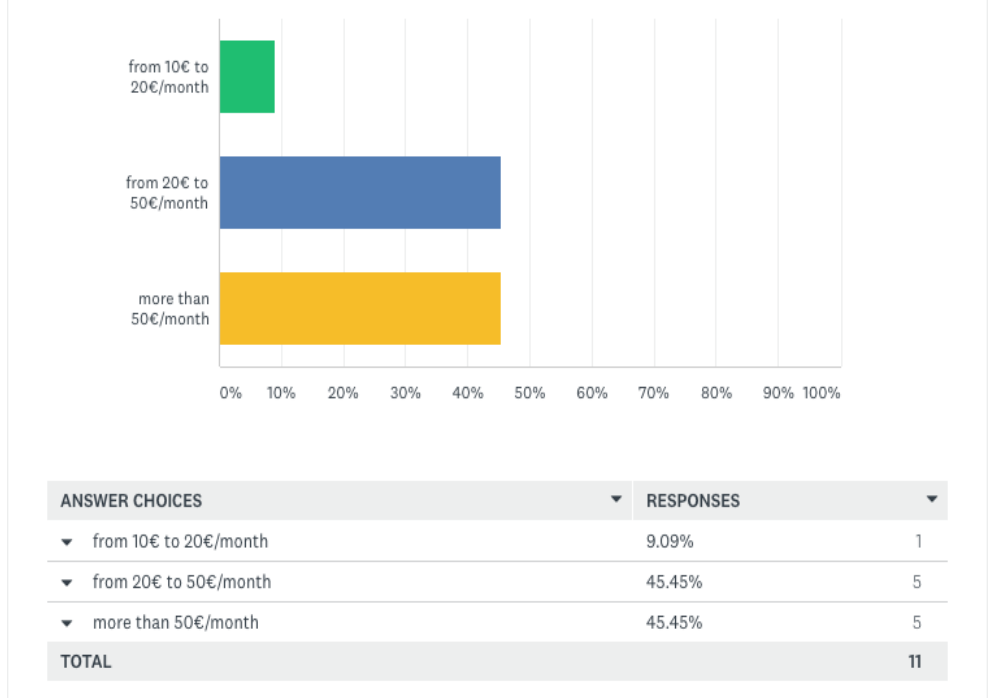
Answered: 11 Skipped: 0



ANSWER CHOICES	RESPONSES
Extremely likely	9.09% 1
Very likely	54.55% 6
Somewhat likely	27.27% 3
Not so likely	0.00% 0
Not at all likely	9.09% 1
<b>TOTAL</b>	<b>11</b>

How much would you be willing to pay for a monthly subscription to this product?

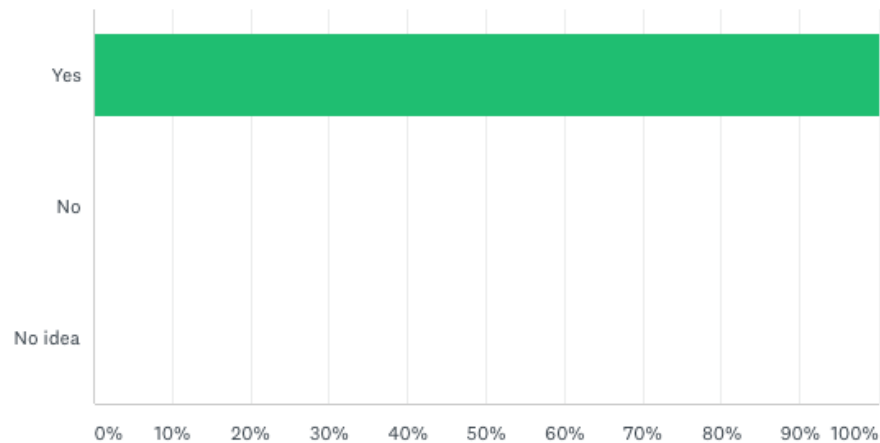
Answered: 11 Skipped: 0



ANSWER CHOICES	RESPONSES
from 10€ to 20€/month	9.09% 1
from 20€ to 50€/month	45.45% 5
more than 50€/month	45.45% 5
<b>TOTAL</b>	<b>11</b>

Would you like to be informed when the system will be ready?

Answered: 11    Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	100.00%	11
No	0.00%	0
No idea	0.00%	0
TOTAL		11